Firm Transmission Rights in the RTO-West Environment

CREPC Dialogue with RTO-West Participants

September 8, 2000

Portland, Oregon

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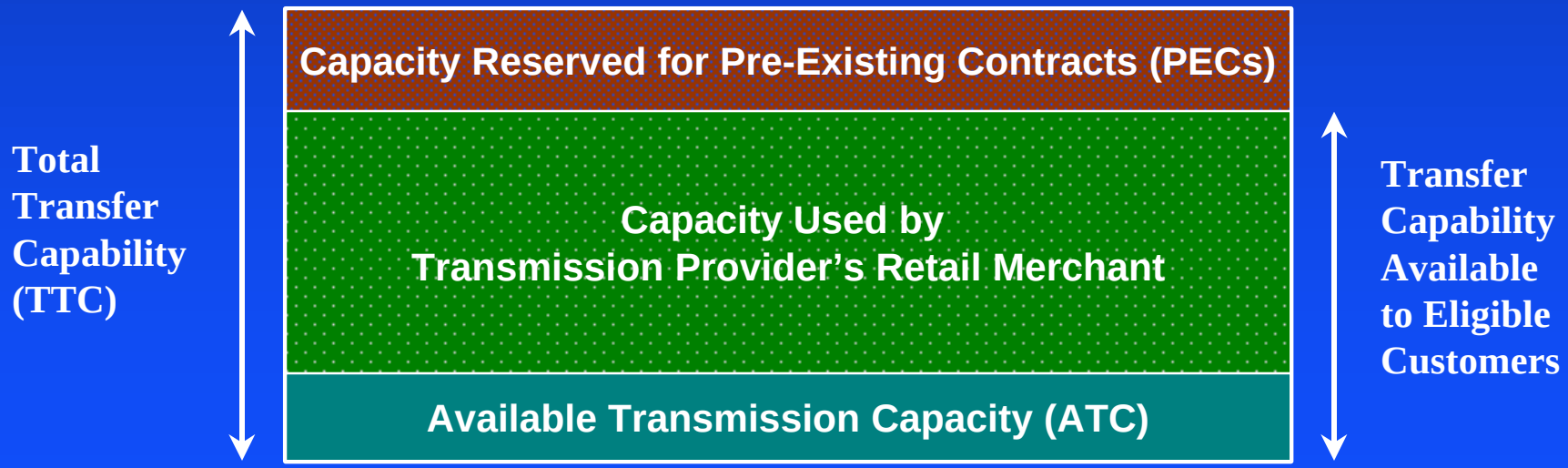
Overview

- Transmission access today
- Competitive energy markets require new transmission access rules
- The new world of transmission access
  - Firm Transmission Rights (FTRs)
  - Auctions
  - Markets
  - Revenue allocation
- The implementation options
- Protections for load

Transmission Access under Order 888

- Access is rationed on a first-come, first-served basis
  - Scarce (valuable) capacity is generally sold on an embedded cost basis
  - Price is rarely used as an allocation mechanism.
- Transmission pricing is economically inefficient…
  - But at least transmission access does exist!



FERC Order 888: Pricing Policy

- "ATC is not available" is not an excuse for denying access.
- With rare exceptions, the Transmission Provider must offer to provide transmission service at a rate based on:
  - Transmission Provider's opportunity cost/redispatch cost
  - Embedded cost
  - Incremental cost of new facilities.
- The Transmission Customer pays the higher of:
  - Embedded cost-based rate, or
  - Transmission Provider's opportunity cost (or redispatch cost), capped by incremental cost.
- Result: no harm to existing transmission users, but access for all Eligible Customers.

Transmission Access: Is It a Problem?

- Vertically-integrated transmission providers have always had - and continue to have - incentives to block access for anti-competitive reasons
  - Customer retention
  - Create obstacles for competitors
  - To many of the integrated utilities: transmission customers are the enemy, not the customer.
- These perverse incentives will increase in competitive wholesale and retail access environments
  - Risks of stranded generation assets, risks of loss of captive markets
- Allocating control over the grid's transmission rights to the incumbents' merchants (the current RTO-West proposal) would be a major step backward.
- Loss of competition = loss of benefits to retail customers.

Transmission Access: Is It a Problem?

- **"Allegations of discrimination are serious because, if nothing else, they represent a perception by market participants that the market is not working fairly. If market participants perceive that other participants have an unfair advantage through their ownership or control of transmission facilities, it can inhibit their willingness to participate in the market, thus thwarting the development of robust competition." (Order 2000, p. 37)**

- **"The NOPR stated that the perception that many entities that operate the transmission system cannot be trusted is not a good foundation on which to build a competitive power market, and it created needless uncertainty and risk for new investments in generation." (p.38)**

- **"Efficient and competitive markets will develop only if market participants have confidence that the system is administered fairly." (p.69)**

- **"UAMPS states that it is intuitively obvious that when the transmission function and merchant function ultimately serve the same master, neither can be truly independent." (p.47)**

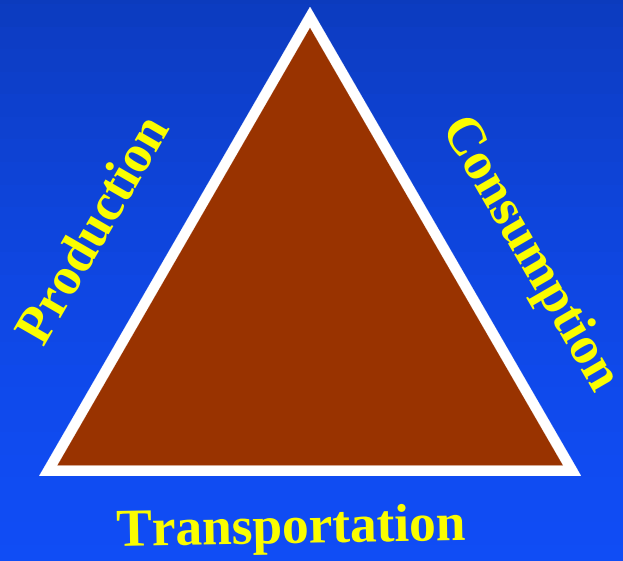
- **"There simply is no shaking the notion that integrated generation and transmission-owning utilities have strategic and competitive interests to consider when addressing transmission constraints. Functional unbundling and enforcement of conduct standards… are not practical." (Blue Ridge Power Agency) (p.69)**

Why Is Transmission Access Important Today?

- Maximizing the value - the efficient allocation and use - of the transmission grid benefits those who pay for the grid.
- Transmission access is <u>always</u> about serving load
  - New entrants compete to serve loads at lower cost than the incumbents
  - Transmission access for energy merchants = access to cheaper resources = benefits to loads.
- Without transmission access, neither robust wholesale competition nor viable retail competition can occur
  - Loads lose directly and indirectly
    - Without competition, there is little motivation for incumbent utilities to minimize costs.

Why Is Transmission Access Important Today?

- Transmission access is at the heart of the competitive electricity market
  - Without efficient transmission access, competitive generation is isolated from loads and little real competition is possible
- As in any other industry: efficiency requires making the right tradeoffs



- Removal of transportation from the picture eliminates competition and reduces efficiency. Loads lose.

Why Will Transmission Access Be More Important in the Future?

- Very little new transmission will be built: so we need better tools to allocate scarcity.
- We need to make the right tradeoffs between new transmission, new conventional generation, distributed generation and demand-side management: so we need explicit price signals about the value of transportation.
- There will be less and less ATC and it will be more valuable; but first-come, first-served transmission access will undervalue the grid, at the expense of those who pay for the grid.
- Parties with transmission rights cannot sell those rights for market value: this undermines efficiency and stifles the development of alternatives (local generation, conservation…).
- Most new generation will be developed by IPP merchants: we need to make sure that they see the costs associated with their siting decisions.
- Most generation will be scheduled by entities that are independent of the wires business: those entities need to see the costs of their decisions.

The Only Workable Solution

- **We must allocate scarce transmission capacity to those users who place the highest value on it**
  - **Exposing <u>all</u> grid users to the value of scarce transmission capacity is the only way to create consistent incentives for proper decision-making between Production, Transportation and Consumption**
  - **To do this, we must:**

1. **Define standardized, tradable transmission products that can be valued by the marketplace: *FTRs***
2. **Bring these products into the marketplace: *FTR auctions***
3. **Ensure liquidity in the marketplace: *"Transmission Exchanges"***
4. **Allocate the benefits from the scarcity value of the transmission grid to those who pay for the grid: *FTR revenue allocation***
5. **Ensure that loads continue to have access to grid: *FTR revenue allocation***

Firm Transmission Rights (FTRs)

- An FTR is a contract which conveys the right to schedule one MW of energy or capacity (ancillary services) over a specific set of commercially-significant transmission facilities (a "flowpath") for one specific hour.
- FTRs will only exist on "commercially-significant" facilities
  - Analogy: Toll roads vs. uncongested highways and streets
  - Flowpaths are defined by the RTO: they are transmission facilities which experience commercially-meaningful amounts of "congestion"
  - "Congestion" is the condition that occurs when the demand to use a facility exceeds the transfer capability of the facility.
  - Flowpaths are <u>not</u> the same as "contract paths"
    - Flowpaths have engineering and operational significance: they are the facilities over which energy schedules must be limited.
- FTRs are standardized transportation commodities that are freely tradable in secondary markets.

Key Characteristics of FTRs

- Unidirectional.
- Provide both scheduling certainty and financial certainty.
- Not hoardable: “use-them-or-lose-them.”
- Number of FTRs for an flowpath: up to the physical capacity (simultaneous rating) of the flowpath
- FTRs are “derated” for large disturbances which impact the Operating Transfer Capability of the interfaces
  - Similar to conditions under which transmission rights are derated today
  - Otherwise, FTR holders are protected against impacts of small disturbances, modeling errors and other phenomena which would otherwise reduce the value of the FTR as a physical or financial hedge
- RTO releases blocks of FTRs to the marketplace periodically
  - Once released, FTRs can be resold to Eligible Customers in secondary markets in hourly blocks.

FTRs Are New RTO-Created Products

- **FTRs do not exist today!**
  - **They are not the same as existing transmission rights.**
  - **They do not generally map 1:1 to existing transmission rights.**
- **FTRs are created by the RTO**
  - **The transmission owners' facilities create transfer capability.**
  - **This transfer capability, under the RTO's control, enables the RTO to define, create and sell standardized, tradable transportation rights (FTRs).**
  - **The number of FTRs that can be created for a flowpath = TTC of the flowpath minus capacity that must be reserved for non-converted pre-existing contracts.**
  - **The RTO will create and release FTRs in blocks (8,760 consecutive hourly FTRs, 720 consecutive hourly FTRs, etc.).**

FTRs Are Physical Rights

- **FTRs are rights to schedule**
  - **FTRs (or derivative products - RTRs, NTRs) are required in order to schedule the use of flowpaths**
  - **If FTRs are not scheduled by the RTO's day-ahead deadlines, the RTO will release the associated unused transmission capacity to the marketplace as Recallable Transmission Rights (RTRs)**
  - **The FTR-holder can schedule the use of the FTR up to shortly (90 minutes?) before real-time**
    - **If the FTR-holder does this, the RTO will recall an RTR**
    - **If not, the RTR will become a firm right at that time.**
- **FTRs are *options* to schedule, not *obligations* to schedule**
  - **They can be used to schedule energy or capacity (ancillary services).**
  - **Whether or not the FTR-holder schedules an FTR, the FTR-holder is not directly exposed to congestion costs (as would be the case in the PJM/NYISO/NEISO models).**

FTRs: Summary

- Standardized terms & conditions (scheduling, curtailment…)
- Fungible transportation product
  - Few restrictions on resale in secondary markets
  - Compared to existing rights, far fewer impediments to access to lowest-cost resources
- Not hoardable: use-or-lose
- Directly linked to the use of scarce (economically-valuable) facilities:
  - Unlike existing rights, enables explicit capture of redispatch costs (vs. socializing those costs)
  - Explicit pricing of congestion exposes the scarcity value of the facilities
  - Short-term: better resource scheduling decisions
  - Long-term: better input to grid expansion decisions
- RTO's objective *should be* to make FTRs available to all Eligible Customers, to enable their sale to the highest-valued uses

FTR Markets: Why Are They Needed?

- **A robust transportation market is a *precondition* for meaningful competition in provision of both wholesale and retail energy**
  - **Reduces ability of large players to control transportation (through withholding of FTRs, pricing of FTRs) and thereby control energy production in the marketplace.**
  - **Risk management: without clear transportation prices and fungible transportation products, and without the liquidity and depth needed for stable transportation pricing, delivery risks are much higher = higher costs to consumers.**
  - **Without liquid FTR markets, ability of participants to arbitrage away inefficiencies is greatly reduced.**
- **Viable markets require both adequate volume of commodity (FTRs) and sufficient number of participants**

Alternatives to FTR Markets?

- Without a robust FTR market, there will be little meaningful competition - wholesale or retail - to serve loads .
- Trading of old-world point-to-point rights is inadequate
  - New load-serving entities most-often do not need access from location old load-serving entity's resources
  - Trading is difficult and incumbents have few incentives to make it easy
  - Restrictions in T&Cs of old world rights thwart commerce.
- Pro rata allocation of existing transmission rights (proposed for some retail access programs) is also unworkable
  - Allocates the wrong bundles of rights to the new load-serving entities
  - New entities can not use rights that go to location of the incumbents' resources.
- The only way to creation viable transportation markets is for the RTO to bring all FTRs to the market through auctions (annual, seasonal, monthly).

FTR Auctions

- Every year, RTO auctions 100% of the FTRs that can be made available in annual blocks
  - TTC minus capacity that must be reserved for Existing Contracts.
- Ongoing RTO release (seasonal, month-ahead, week-ahead, day-ahead) of additional blocks of FTRs to the marketplace
  - Capacity that cannot be made on a long-term basis but can be made available on a shorter-term basis.
- Single-clearing price auction for blocks of FTRs
  - Auctions for FTRs for each flowpath are conducted independently
  - Any Eligible Customer, except a TO, may participate in the auction
  - RTO stacks bids from the highest to lowest, allocates the FTRs to the highest bidders
  - The price of the first unaccepted bid (i.e., the marginal value of an additional FTR on the flowpath) is the clearing price, which is charged to all winning bidders.

FTR Auctions

- **Core principle behind the FTR model: the value of the transmission grid should go to those who pay for the fixed costs of the grid.**
- **Consistent with that principle, the RTO could:**
  - **Allocate the FTRs to representatives of the transmission ratepayers and hope that they will voluntarily place their FTRs into the annual auction in return for the associated auction revenues (RTO-West?)**
  - **Auction the FTRs and credit the auction revenues to the appropriate TO's Annual Transmission Revenue Requirements (monetization - CAISO approach)**
  - **Auction the FTRs and credit the auction revenues to the representatives of the transmission ratepayers - the local utilities and SCs who serve loads) (monetization - MWISA, DSTAR and possibly RTO-West)**
  - **All three approaches are consistent with the core principle - but they have different implications for creation of competitive markets**
  - **Allocation of FTRs means almost no capacity will be available in the RTO auction**

Allocation of Transmission Rights

- There is substantial competition between grid users for the entitlements to use the flowpaths
- Pre-Existing Contracts have explicit entitlements
  - But what are the entitlements upon expiration of the primary term of the contracts ("rollover rights")?
  - And what are the entitlements associated with future load growth?
- What are the entitlements of grid users who do not take service under explicit contracts? And what are their rollover and load growth entitlements?
- How are non-standard terms and conditions of transmission service translated to FTRs or FTR auction revenues?

Allocation of Transmission Rights

- **Entitlements to use of the flowpaths can be honored by allocating:**
  - **"FTR chits" that can be redeemed for rights to use the flowpaths, or**
  - **"FTR chits" that can be redeemed for sufficient funds to enable the entities to purchase the identical quantities of such FTRs in the RTO's auctions (monetization).**
  - **The key question for grid users should be: how many "FTR chits" will they be allocated compared to other grid users?**
- **Whether these are chits for FTRs or chits for auction revenues should not make a difference to these grid users… but it will make a big difference for competition and for consumer interests.**

Monetize vs. Allocate FTRs?

There are many reasons why monetization is superior to allocation of FTRs:

- **Economic efficiency**
  - **Requires grid users to make explicit economic tradeoffs**
- **Mitigation of market power**
  - **It is more difficult to exercise market power actively than passively**
- **Flexibility**
  - **Provides more options for honoring and converting existing rights into RTO service**
- **Practicality**
  - **A far more practical medium for allocation of rights when there are many participants in the market**
- **Preservation of transmission access rights of all Eligible Customers**
- **Creation of liquid markets for transmission access**

FTR Release Mechanisms

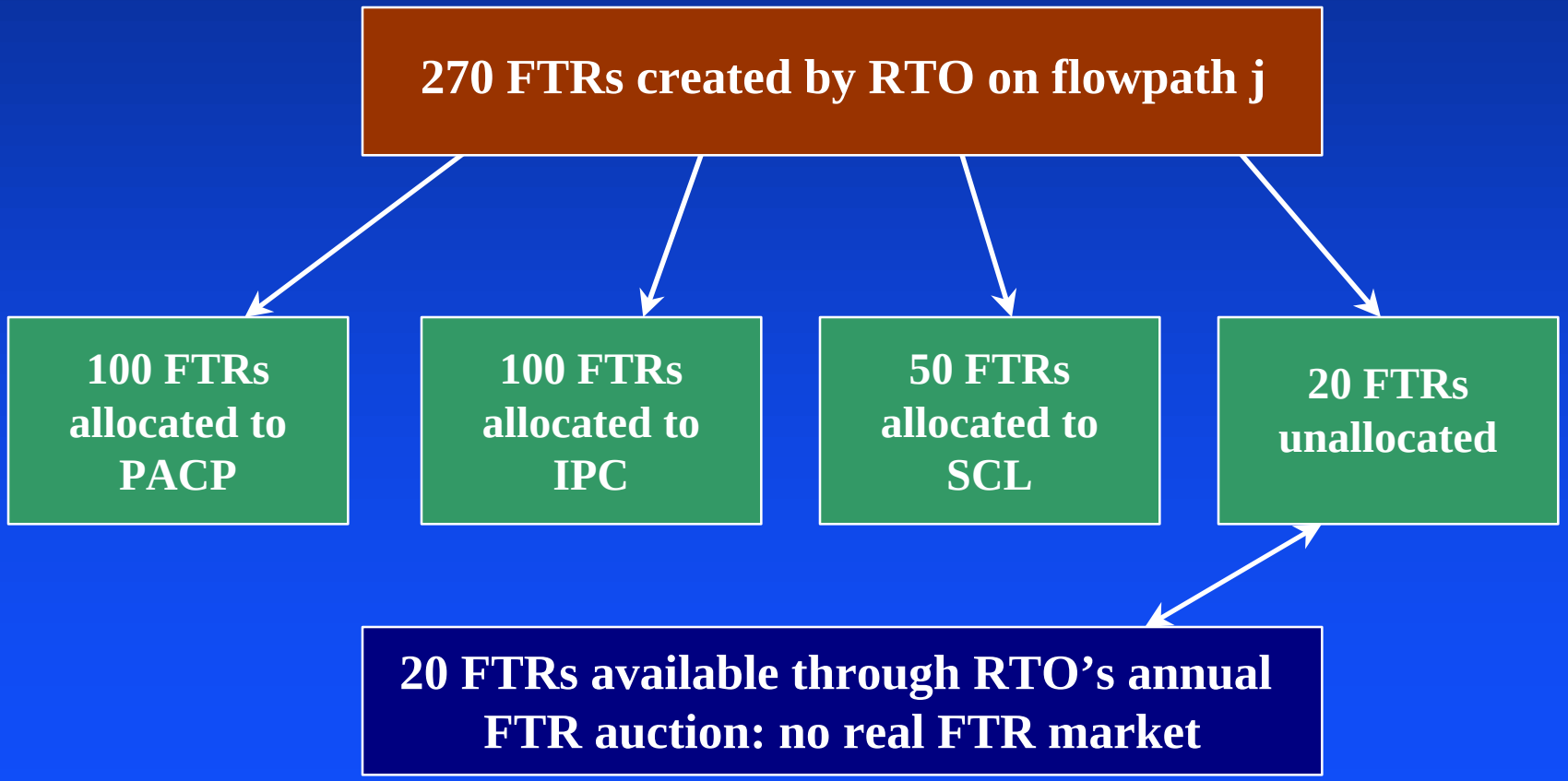
- **Alternative 1: Allocate FTRs to those who have entitlements**
  - **Problem: little likelihood of creating competitive transmission markets**
  - **Incumbents are not likely to place FTRs into annual auctions**
    - **Desire to limit competition**
    - **Passive exercise of market power with little fear of exposure**
    - **Fear of regulatory second-guessing**
    - **Fear of change.**

FTR Release Mechanisms

- **Alternative 2: Allocate FTR revenues to those who have entitlements**
  - **With these FTR chits, entitlees can guarantee that they will acquire the same FTRs that they would have received under Alternative 1 (e.g., by bidding $1 billion/MWH)…**
  - **… but the entitlees must make explicit bids into the FTR auction**
  - **Ensures that the market develops, as incumbents must participate in the market and make conscious decisions regarding the value of transmission.**
  - **Alternative 3: Allocate FTRs as in Alternative 1, but require that the entitlees offer them into the RTO auction with a "reserve price"**
  - **Once again, guarantees that the entitlees can hold onto all FTRs…**
  - **… but again, they must make conscious decisions about their value.**

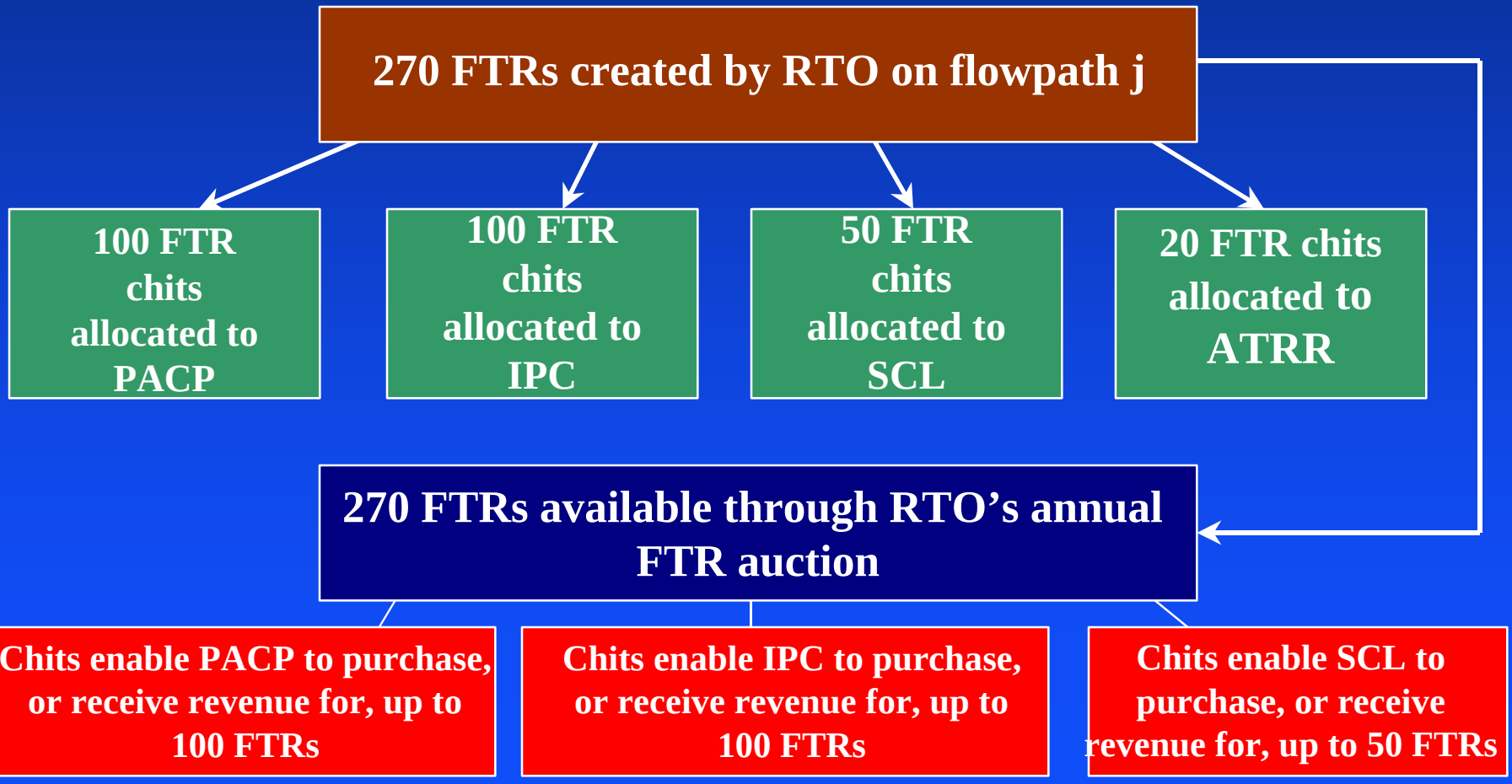
Monetization vs. Direct Allocation

Without monetization or a similar mechanism, competitive markets will not exist



Monetization vs. Direct Allocation

With monetization or a similar mechanism, competitive markets can be created while keeping grid users whole



Secondary Markets for FTRs

- Any Eligible Customer may buy/sell/trade FTRs in secondary markets
  - Bilateral transactions
  - "Transmission Exchanges" - continuously-operating secondary marketplaces - as many as the marketplace desires to support
  - Creation of markets that allow continuous FTR trading (long-term to real-time) is very important
    - California problem: no long-term hedging
- RTO will monitor for anti-competitive behavior and abuse of market power
  - Forums for redress: FERC, DoJ, SEC, CFTC...
- Possible market power mitigation measures
  - Market concentration reporting requirements: any entity that holds more than 20% of FTRs on a flowpath must report this position to the RTO
  - Obligation to offer to "make a market" if an entity holds more than 33%(?) of FTRs on a flowpath.

Some Questions and Answers

How is "native load" protected through FTR monetization?

- The FTR allocation process determines which flowpath entitlements are allocated to which grid users.
- Because entitlements are made only to entities that either have pre-existing contracts or that contribute to the embedded cost of the grid, there is no risk that existing grid capacity will be allocated away from PNW loads as a whole.
- Rules for entitlements between sub-groups of the PNW loads have been proposed in the RTO-West process.
- If the entitlements are implemented as " FTR chits" which provide an entitlement to FTR auction revenues, the entitlees can, through their bidding in the FTR auctions, guarantee that they will receive the FTRs.
- In the extremely unlikely event of a "tie", the FTRs would be allocated to the entity that possesses a chit.

Some Questions and Answers

How is "native load" better off with FTR monetization?

- Absent FTR monetization, there is little likelihood that competitive energy markets will exist.
- In addition to the benefits associated with allowing competition to occur, loads benefit if their representatives bid a price of $x to purchase FTRs (or under a reserve price scheme, to release FTRs) and the market clearing price is greater than $x: the extra value (the market clearing price - $x) accrues to the loads' representatives for allocation to loads.
- Loads' risk of being exposed to inaccurate calculations of redispatch costs (pursuant to transmission requests made under the existing tariffs) is reduced, because the loads' representatives do not have to meet the same strict standards for estimating those costs. (I.e., the loads' representatives can be more conservative in making their estimates.)

Some Questions and Answers

What prevents a non-load-serving entity from hoarding FTRs?

- **FTRs must be scheduled or they will revert back to the RTO for use as Recallable Transmission Rights.**
- **If an entity has FTRs but no load, the entity can not "sit on" the FTR and prevent its use by other entities. The entity would lose the FTR and the market value of the FTR because it would not be able to submit a Balanced Schedule (in which load equals generation) to schedule the use of the FTR.**
- **On the other hand, if an entity has load but has no FTRs because they are being "hoarded" by an entity with no load, the first entity could line up its energy schedules and out-wait the hoarding entity. The first entity would then be able to acquire the FTRs when they revert to the RTO or are released by the RTO on a recallable basis.**

FTRs: Comparison to Existing System

- – Lack of familiarity
- – Need to convert existing rights to new system
- \+ Removes many barriers to competition:
  - No hoarding
  - More flexibility to acquire and to resell
  - Avoids non-fungibility of point-to-point transmission products
  - Ease of acquisition (*if* made available through auctions)
- \+ Makes passive exercise of market power through withholding much more difficult (*if* implement one of the monetization alternatives)
- \+ Creates price signals for scheduling, for expansion, and for release of capacity for use by others
  - Short-term efficiency: ability to access lowest cost power not blocked by incumbents' old-world rights
  - Long-term efficiency: expansion pricing signals
  - Enables short-term and long-term valuation of scarce transmission resources
  - Enables trade-offs with substitutes for T (conventional G, DG, DSM).

Concluding Remarks

- **The RTO must move from today's contract path approach to a model that is based on FTRs**
  - **FTRs are needed for efficient scheduling, use, management and expansion of the transmission grid.**
- **FTRs are the heart of the RTO proposal**
  - **They are a prerequisite for competition and for robust transmission access.**
- **The rules for the allocation of "FTR chits" are the key to equitable allocation of the value of the transmission grid**
  - **This is an issue between those who pay for grid use. Today these entities are the customers of TOs and incumbent users who have pre-existing contracts.**
  - **Monetization is the only way to achieve the benefits of competition**
  - **Allocation of FTRs - but with a requirement to bid those FTRs into the RTO's auction - could achieve similar benefits**
  - **Allocation of FTRs - without such a requirement - would be harmful to competition and to consumer interests.**